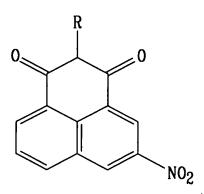
Title: USE OF METABOLIC PHEN Inventor: Brian Leyland-Jones







Basic Structure of N- (Aryl Substituted) - naphthalidimides



Title: USE OF METABOLIC PHEN Inventor: Brian Leyland-Jones

# NAT2

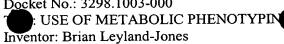
1X (1-methylxanthine)

$$H_3C$$
 $NH_2$ 
 $CH_3$ 
 $NH_2$ 

AAMU (5-acetamino-6-amino-methyluracil)

$$H_3C$$
 $NH$ 
 $C$ 
 $NH$ 

AFMU (5-acetamino-6-formylamino-methyluracil)





$$H_3C$$
 $CH_3$ 
 $CH_3$ 

Caffeine (1,3,7-trimethylxanthine)

1,7-DMX (1,7-dimethylxanthine)

1,7-DMU (1,7-dimethyluracil)



Docket No.: 3298.1003-000 le: USE OF METABOLIC PHENOTYP. Inventor: Brian Leyland-Jones

#### CYP3A4

MDZ (Midazolam)

1-OH-MDZ (1-Hydroxymidazolam)

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Docket No.: 3298.1003-000

Title SE OF METABOLIC PHENOTYPING...

Inventor: Brian Leyland-Jones

# NAT1

p-ASA (p-aminosalicylic acid)

Acetyl-pASA (acetyl-p-aminosalicylic acid)

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Docket No.: 3298.1003-000
e: USE OF METABOLIC PHENOTYPI
Inventor: Brian Leyland-Jones

#### CYP2A6

Coumarin

7-Hydroxycoumarin



Title: USE OF METABOLIC PHENOT Inventor: Brian Leyland-Jones



## **CYP2C19**

R-(-)-Mephenytoin

S-(+)-Mephenytoin

Docket No.: 3298.1003-000

Title: USE OF METABOLIC PHENOTY Inventor: Brian Leyland-Jones

## CYP2C9

#### (s)-Ibuprofen

2-carboxyibuprofen

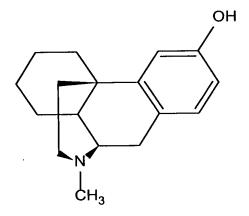
Docket No.: 3298.1003-000

e: USE OF METABOLIC PHENOTYPI

entor: Brian Leyland-Jones

## CYP2D6

Dextromethorphan



Dextrorphan

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Pocket No.: 3298.1003-000 le: USE OF METABOLIC PHENOTYP Inventor: Brian Leyland-Jones

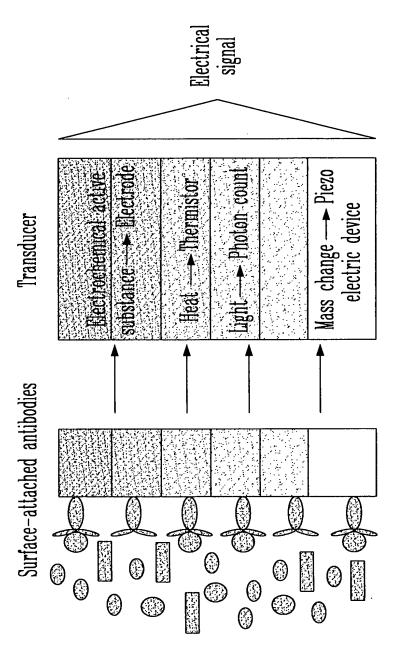
## CYP2E1

Clorzoxazone

6-Hydroxychlorzoazone

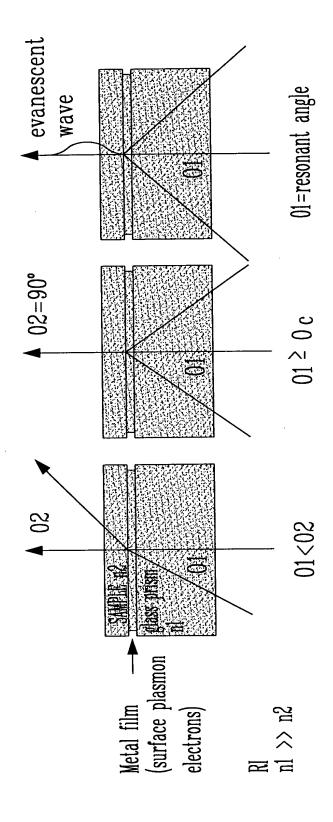


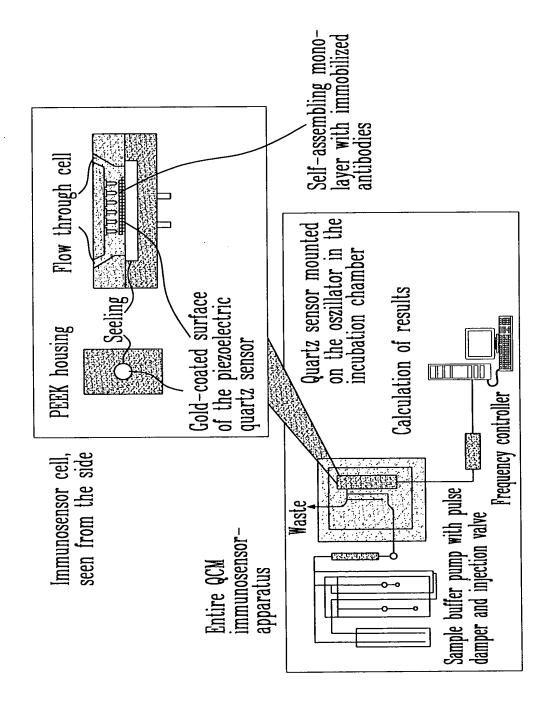
Docket No.: 3298.1003-000 itle: USE OF METABOLIC PHENOTYI inventor: Brian Leyland-Jones





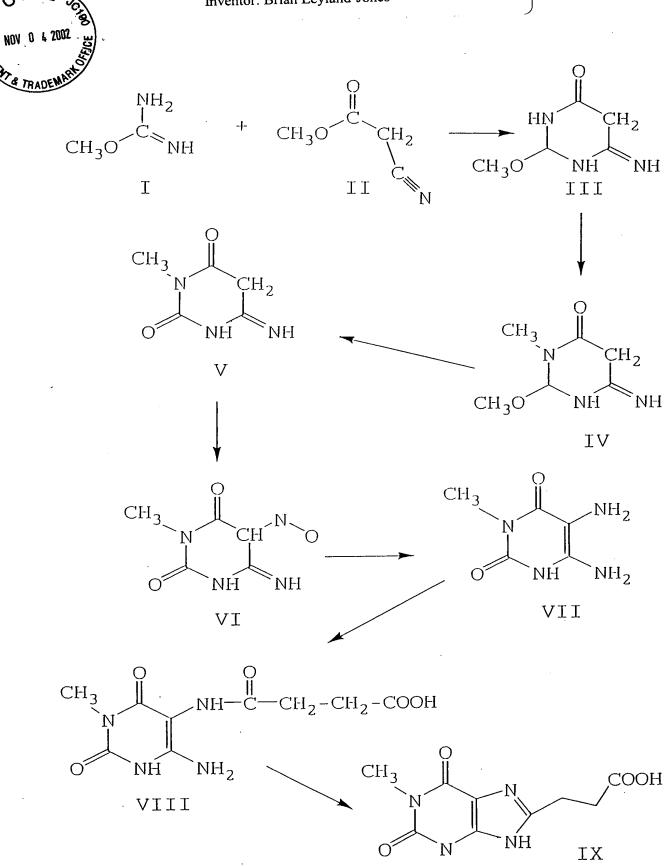
Docket No.: 3298.1003-000
Tit JSE OF METABOLIC PHENOTYPING
Inventor: Brian Leyland-Jones





Title: USE OF METABOLIC PHENOTY

Inventor: Brian Leyland-Jones



AAMU-hemisuccinic acid

1 methyl xanthine-8-propionic acid

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: USE OF METABOLIC PHENOTYPIN

Inventor: Brian Leyland-Jones

Derivatives of AAMU (5-acetamino-6-amino-3-methyluracil) or AFMU (5-acetamino-6-formylamino-3-methyluracil)

Х

$$(CH_2)$$
  $n-COOH$ 

where n = 2,3 or 4

$$(CH_2) n - C - NH - (CH_2) n - NH_2$$

$$CH_2 - X'$$

where X' is I, Br, or Cl

$$CH_2-S-(CH_2)n-NH_2$$

$$\mathtt{CH_2} - \mathtt{S} - \mathtt{CH_2} - \mathtt{CH_2} - \mathtt{OH}$$

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Docket No.: 3298.1003-000

e: USE OF METABOLIC PHENOTYPD

Inventor: Brian Leyland-Jones

Derivatives of AAMU (5-acetamino-6-amino-3-methyluracil) or AFMU (5-acetamino-6-formylamino-3-methyluracil)

Х

$$(CH_2)$$
  $n-COOH$ 

where n = 2,3 or 4

$$(CH_2)$$
  $n-C-NH-NH_2$ 

$$(CH_2) n - C - NH - (CH_2) n - NH_2$$

$$CH_2-X'$$

where X' is I, Br, or Cl

$$CH_2-S-(CH_2)n-NH_2$$

$$\mathrm{CH_2}\mathrm{-s}\mathrm{-CH_2}\mathrm{-CH_2}\mathrm{-OH}$$



tle: USE OF METABOLIC PHENOTYP

inventor: Brian Leyland-Jones

Derivatives of 1X (methylxanthine)

$$\begin{array}{c|c}
 & H \\
 & N \\$$

X

$$(CH_2)$$
  $n-COOH$ 

where n = 2,3 or 4

$$(CH_2)n-C-NH-NH_2$$

$$(CH_2) n - C - NH - (CH_2) n - NH_2$$

$$(CH_2) n - C - NH - (CH_2) n - SH$$

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Title: USE OF METABOLIC PHENOT Inventor: Brian Leyland-Jones

Derivatives of 1X (methylxanthine)

$$\begin{array}{c|c} & & & \\ & & & \\ & & & \\ X & & & \\ & & & \\ X & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & \\ & & & \\ & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ &$$

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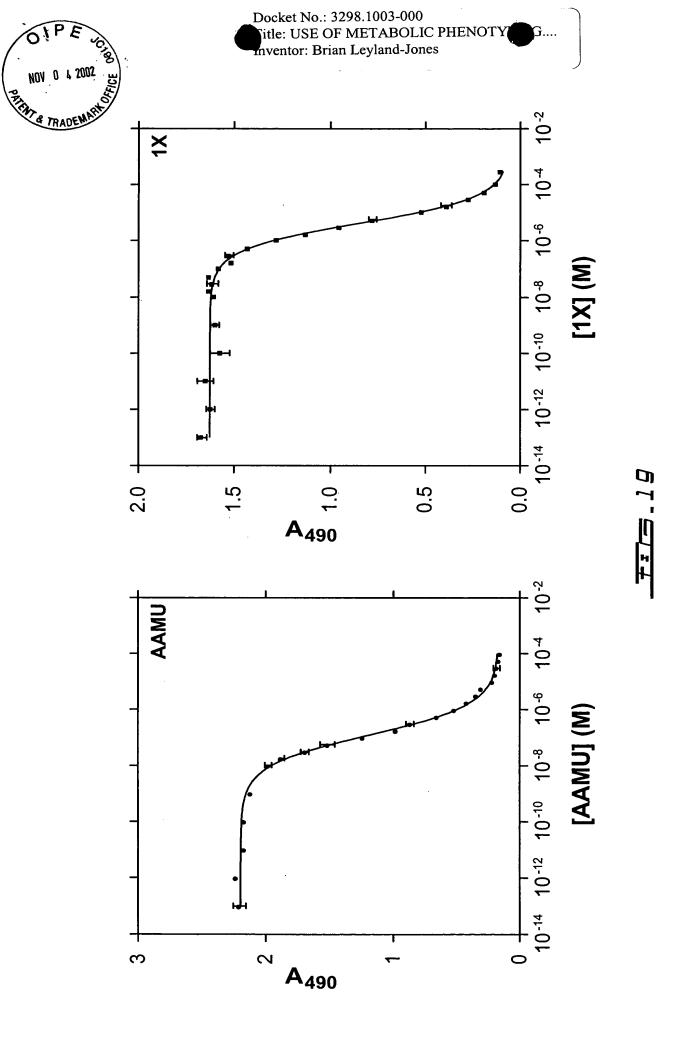
$$(CH_2)$$
 n-COOH

where n = 2,3 or 4

$$(CH_2)$$
  $n-C-NH-NH_2$ 

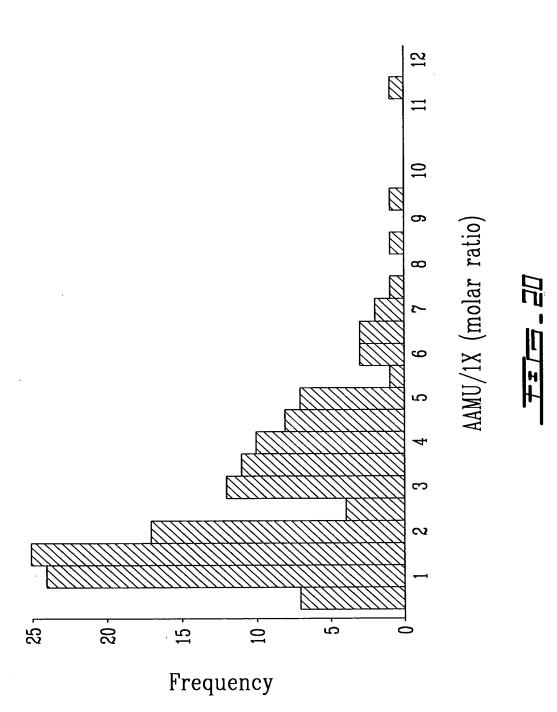
$$(CH_2) n - C - NH - (CH_2) n - NH_2$$

$$(CH_2) n - C - NH - (CH_2) n - SH$$



Docket No.: 3298.1003-000
2: USE OF METABOLIC PHENOTYPIN Intor: Brian Leyland-Jones







Title: USE OF METABOLIC PHENOT

Inventor: Brian Leyland-Jones

СНз ĊНз  $Br(CH_2)_5COOCH_2CH_3$  ${\rm CH_2(CH_2)_4C00CH_2CH_3}$ СНз ĊН3 II NaOH  $CH_2(CH_2)_4COOH$ СН3. ĊН3 III

Caffeine derivative

СН3 N H IV  $Br(CH_2)_5COOCH_2CH_3$  $\mathrm{CH}_2(\mathrm{CH}_2)_4\mathrm{COOCH}_2\mathrm{CH}_3$  $CH_3$ NaOH  $CH_2(CH_2)_4COOH$ СНз VI

1,7-dimethylxanthine derivative

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Docket No.: 3298.1003-000

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Invent Brian Leyland-Jones

$$0 \\ 0 \\ N \\ NH_2$$

$$0 \\ NH_2$$

$$\begin{array}{c|c} O & (CH_2)_4NHBOC \\ CH_3 & N & COOCH_2CH_3 \\ O & N & NH_2 \\ XV & XVI \\ \end{array} \xrightarrow{CH_3 & O & (CH_2)_4NH_2 \\ CH_3 & N & N & N \\ O & N & N & N \\ XVI & XVI \\ \end{array}$$

1,7-dimethyluric acid derivative





12	STD16	STD17	STD18	STD19	STD20	STD21	STD22	STD23
11	STD8	STD9	STD10	STD11	STD12	STD13	STD14	STD15
10	BIK	STD1	STD2	STD3	STD4	SILDS	STD6	STD?
6	SS	S6	S7	S8	S9	S10	S11	S12
8	S9	S10	S11	S12	S1	ZS	S3	S4
7	SI	SS	S3	S4	S5	S6	S7	S8
9	S2	S6	S7	S8	S9	S10	S11	S12
5	S9	S10	S11	S12	S1	SS	S3	S4
4	SI	SS	S3	S4	35	S6	S7	S8
က	STD16	STD17	STD18	STD19	STD20	STD21	STD22	STD23
2	STD8	STD9	STD10	STD11	STD12	STD13	STD14	STD15
1	Blk	STD1	STD2	STD3	STD4	STD5	STD6	STD7
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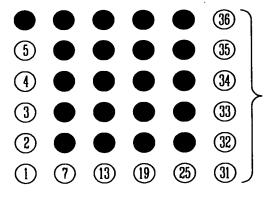
Title: E OF Inventor: Brian

Docket No.: 3298.1003-000 Title: LE OF METABOLIC PHENOTYPING....

Inventor: Brian Leyland-Jones



#### 6X6 ARRAY



#### ARRAY LAYOUT:

ALIGNMENT MARKERS
BUFFER BLANKS
ANTIGENS-

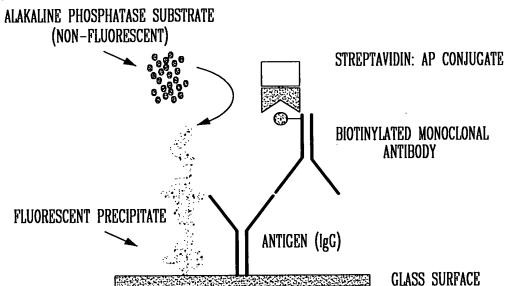
#### ANTIGEN KEY:

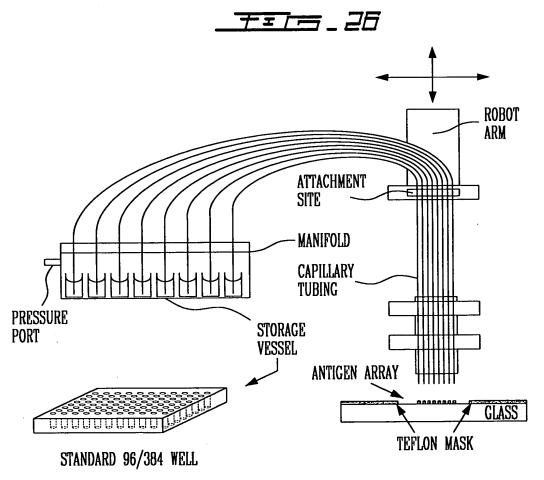
- 1. BIOTINYLATED BSA MARKER
- 2-6. BUFFER BLANKS
- 7. NAT2: AAMU
- 8. BIOTINYLATED BSA MARKER
- 9. NAT2: 1X
- 10. NAT1: pASA
- 11. NAT1: ACETYL-pASA
- 12. CYP1A2: CAFFEINE
- 13. BIOTINYLATED BSA MARKER
- 14. CYP1A2: 1,7-DMX
- 15. CYP1A2: 1,7-DMU
- 16. CYP2A6: COMARIN
- 17. CYP2A6: 7-HYDROXYCOUMARIN
- 18. CYP2C19: R- (-) -MEPHENYTOIN
- 19. BIOTINYLATED BSA MARKER
- 20. CYP2C19: S- (+) -MEPHENYTOIN
- 21. CYP2C9: DICLOFENAC
- 22. CYP2C9: 4-HYDROXYDICLOFENAC
- 23. CYP2D6: DEXTROMETHORPHAN
- 24. CYP2D6: DEXTRORPHAN
- 25. BIOTINYLATED BSA MARKER
- 26. CYP2E1: CHLORZOXAZONE
- 27. CYP2E1: 6-HYDROXYCHLORZOXAZONE
- 28. CYP3A4: MIDAZOLAM
- 29. CYP3A4: 1-HYDROXYMIDAZOLAM
- 30. BUFFER BLANK
- 31-36. BIOTINYLATED BSA MARKER

Title: USE OF METABOLIC PHENOT

Inventor: Brian Leyland-Jones

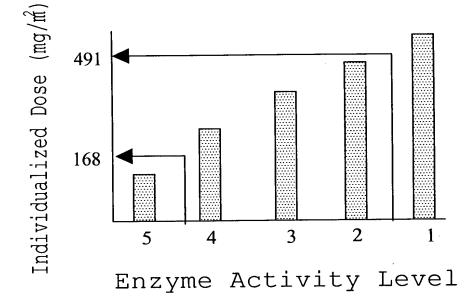


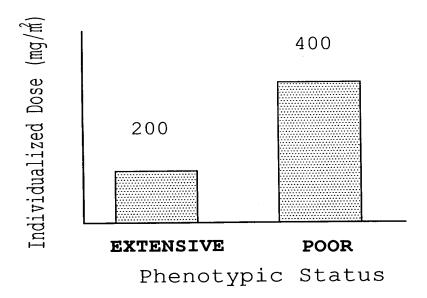




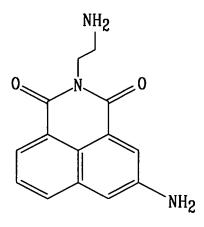


tle: USE OF METABOLIC PHENOTYI ventor: Brian Leyland-Jones





Docket No.: 3298.1003-000 Title: USE OF METABOLIC PHENOTY Inventor: Brian Leyland-Jones



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Title: USE OF METABOLIC PHENOTYPING
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